SenticNet 6: Ensemble Application of Symbolic and Subsymbolic AI for Sentiment Analysis

Year: 2020 | Citations: 441 | Authors: E. Cambria, Yang Li, Frank Xing, Soujanya Poria, Kenneth Kwok

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Abstract

Deep learning has unlocked new paths towards the emulation of the peculiarly-human capability of learning from examples. While this kind of bottom-up learning works well for tasks such as image classification or object detection, it is not as effective when it comes to natural language processing. Communication is much more than learning a sequence of letters and words: it requires a basic understanding of the world and social norms, cultural awareness, commonsense knowledge, etc.; all things that we mostly learn in a top-down manner. In this work, we integrate top-down and bottom-up learning via an ensemble of symbolic and subsymbolic AI tools, which we apply to the interesting problem of polarity detection from text. In particular, we integrate logical reasoning within deep learning architectures to build a new version of SenticNet, a commonsense knowledge base for sentiment analysis.